

BILLINGS (J.S.)

1893

A Condensed Statement of the requirements of the principal University Medical Schools in Europe with regard to Candidates for the Degree of Doctor of Medicine, by DR. J. S. BILLINGS, Surgeon, U. S. Army.

[Prepared at the request of CHAS. J. M. GWINN, one of the Trustees of The Johns Hopkins University, for his personal information, but permitted by Dr. Billings to be printed in January, 1893, for the use of the Trustees and Faculty of the University.]



The principal University Medical Schools in Europe are as follows :

GREAT BRITAIN :	Oxford,
	Cambridge,
	London,
	Dublin,
	Edinburgh, Glasgow.
FRANCE :	Paris,
	Montpellier,
	Nancy.
GERMANY AND AUSTRIA }	: Berlin,
	Leipzig,
	Heidelberg,
	Göttingen,
	Freiburg,
	Bonn,
	Vienna,
	Munich.
BELGIUM :	Liege.
SWEDEN :	Upsala,
	Lund.
ITALY :	Rome,
	Naples,
	Bologna,
	Padua,
	Parma.
DENMARK :	Copenhagen.
RUSSIA :	Dorpat,
	Moscow,
	Warsaw,
	Odessa.
NORWAY :	Christiania.
HUNGARY :	Buda-Pesth.

Those that probably afford the best means of modern advanced medical instruction are :

Berlin,
Paris,
Vienna,
Upsala.

GREAT BRITAIN.

PRELIMINARY EXAMINATION REQUIRED.*

1. No person is allowed to be registered as a medical student unless he shall have previously passed a preliminary examination in the subjects of general education as hereinafter provided.

2. The Education Committee issues from time to time a list of examining bodies whose examinations fulfil the conditions of the Medical Council as regards general education.

3. Testimonials of proficiency granted by educational bodies, according to the subjoined list, are accepted; the Council reserving the right to add to or to take from the list.

4. A degree in Arts of any University of the United Kingdom, or of the Colonies, or of such other Universities as may be specially recognized from time to time by the Medical Council, is considered a sufficient testimonial of proficiency.

5. The following are some of the Examining Bodies whose examinations fulfil the conditions of the Medical Council: Oxford, Cambridge, Durham, London, Edinburgh, etc.

*British Medical Journal, Sept. 3, 1892, p. 497.

RECOMMENDATIONS OF THE GENERAL MEDICAL COUNCIL ON PROFESSIONAL EDUCATION AND EXAMINATION.*

PROFESSIONAL EDUCATION.

The course of the medical study after registration should occupy at least five years. The first four of the five years should be passed at a school or schools recognized by any of the licensing bodies mentioned in Schedule (a) of the Medical Act, provided that the first year may be passed at a University or teaching institution recognized by any of the Licensing Bodies, where the subjects of Physics, Chemistry and Biology are taught.

In every course of Professional Study and Examinations the following subjects must be contained : (1) Physics, including the Elementary Mechanics of Solids and Fluids, and the rudiments of Heat, Light and Electricity; (2) Chemistry, including the principles of the science and the details which bear on the study of Medicine; (3) Elementary Biology; (4) Anatomy; (5) Physiology; (6) Materia Medica and Pharmacy; (7) Pathology; (8) Therapeutics; (9) Medicine, including Medical Anatomy and Clinical Medicine; (10) Surgery, including Surgical Anatomy and Clinical Surgery; (11) Midwifery, including Diseases peculiar to Women and to Newborn Children; (12) Theory and Practice of Vaccination; (13) Forensic Medicine; (14) Hygiene; (15) Mental Diseases.

PRELIMINARY EDUCATION REQUIRED.†

For the Preliminary Examination for registration as a medical student the subjects are: 1. English language, including grammar and composition. 2. Latin, including

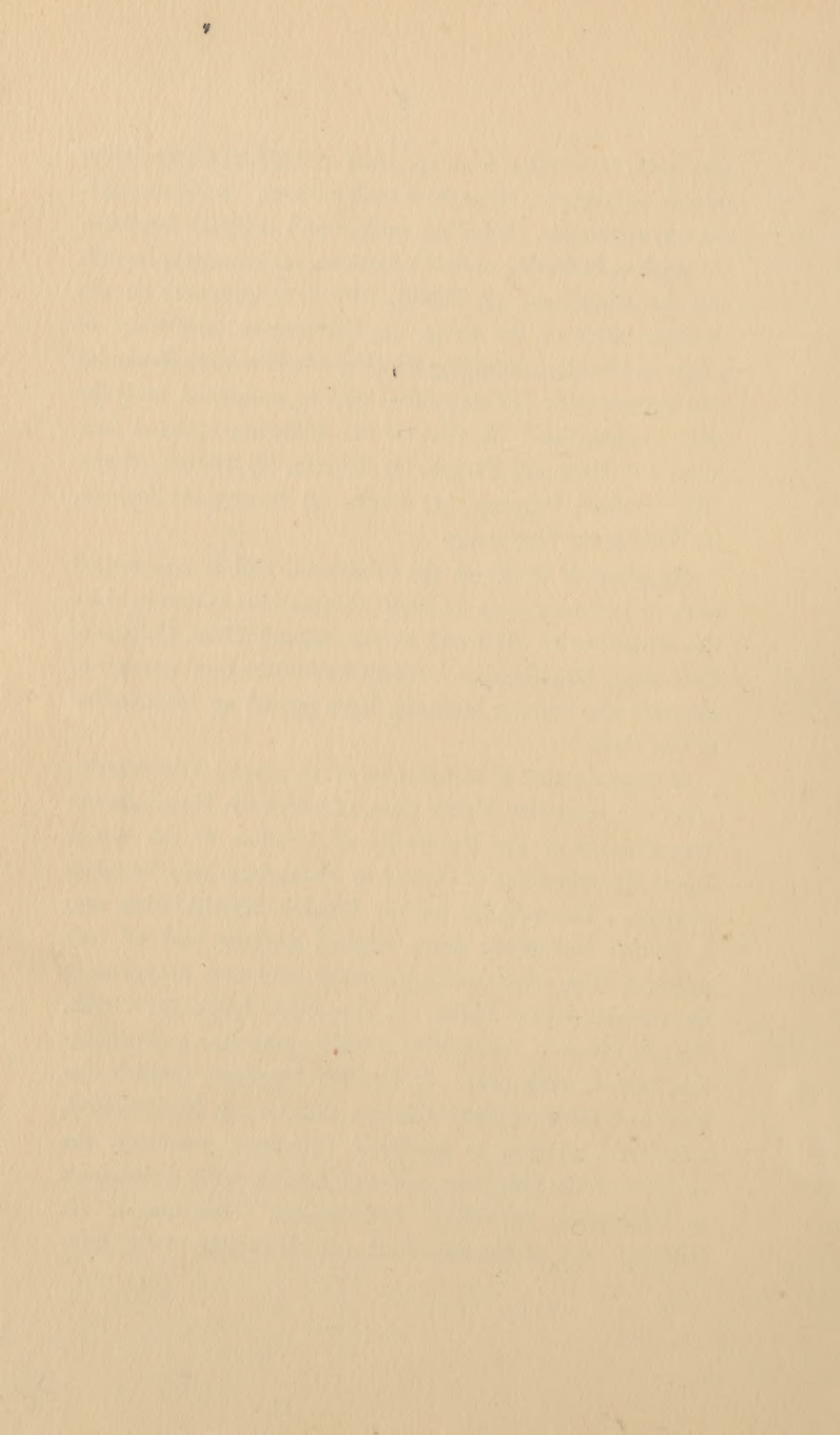
* British Medical Journal, Sept. 3, 1892, p. 498.

† The Lancet, London, 1890, II, p. 485.

grammar, translation from specified authors, and translation of easy passages not taken from such authors. 3. Mathematics, (a) arithmetic, including vulgar and decimal fractions, (b) algebra, including simple equations, (c) geometry, including the First Book of Euclid, with easy questions on the subject-matter of the same. 4. Elementary mechanics of solids and fluids, comprising the elements of statics, dynamics and hydrostatics. (This subject may be postponed until the next examination.) 5. One of the following optional subjects: (a) Greek, (b) French, (c) German, (d) Italian, (e) any other modern language, (f) Logic, (g) Botany, (h) Zoology, (i) Elementary Chemistry.

The above is of course the minimum, and is represented more or less accurately by such examinations as that held by the Apothecaries Hall and by the Second Class College of Preceptors Examination. About half of the total number of students who register annually have passed an examination of this class.

A large number of students, however, pass an Arts examination of a somewhat higher class, of which the Matriculation Examination of the University of London, or the Senior Local Examinations of Oxford or Cambridge may be taken as types. The subjects for the London Matriculation are: 1. Latin; translation from selected authors and of easy passages from other books, grammar, and easy sentences to be translated into Latin. 2. One other language: Greek, French, German, Sanskrit or Arabic—grammar, and translation into English only. 3. English language, English history, and the geography relating thereto. 4. Mathematics, arithmetic, algebra to quadratic equations, geometry, the subjects of the first four books of Euclid, with deductions. 5. Mechanics, including hydrostatics (elementary). 6. Science: one of the following, (a) Chemistry of the non-



metals, (b) Heat and Light, (c) Magnetism and Electricity, (d) Botany.

Examinations of a still higher order are now passed by an increasing number of students. In these we may class the B. A. degree of Oxford and Cambridge, and the Intermediate B. A. Examination in London. The subjects for the latter, which corresponds somewhat with several of the continental minimum examinations for medical students, are: 1. Latin: translation of selected and non-selected authors, grammar, and short passages to be translated into Latin; Roman history. 2. Greek grammar, and translation from a selected author. 3. English language, composition, literature and history. 4. French or German: grammar, and translation into English. 5. Mathematics: arithmetic, algebra to the theory of indices, and logarithms; geometry, plane and solid, with the elements of coordinate geometry; trigonometry.

OXFORD UNIVERSITY.

The degrees in medicine and surgery are only open to graduates in Arts (Bachelor of Arts and Master of Arts).

To become a Bachelor of Arts at Oxford the student must have attended twelve terms and have passed three examinations, namely, Responsions,* and the First and Second Public Examinations. The *Responsions* shall always include the following stated subjects: The Greek and Latin Languages, Arithmetic, and the Elements of Algebra and Geometry. The candidate shall offer one Greek and Latin Book, and shall be examined therein in such a manner as to test especially his knowledge of the grammar of these two languages;

* Responsions are the first examination which these students at Oxford have to pass who are candidates for the degree of A. B.

he shall also be required to translate from English into Latin. Under special conditions the candidate is allowed to substitute for either Greek or Latin, but for one of the languages only, Sanskrit or Arabic. Every candidate who desires to be examined in an additional subject shall offer one of the following: 1. A portion of a Greek or Latin historical or philosophical author. 2. A portion of a French or German historical or philosophical author. 3. A portion of Bacon's *Novum Organum*. 4. The Elements of Logic, Deductive and Inductive. But no candidate shall offer portions of the same author both as a stated subject and as an additional subject.

The *First Public Examination* shall consist of an examination in Holy Scripture; of an examination of candidates not seeking honors, and of an examination of candidates for honors in two schools, of which the subjects shall be, (1) Greek and Latin Literature, and (2) Mathematics. The examination in Holy Scripture shall consist of an examination in (a) one of the Synoptic Gospels and the Gospel according to St. John; (b) either the subject-matter of the Acts of the Apostles or an equivalent portion of the Old Testament. Candidates who do not seek honors in Greek and Latin Literature shall be examined in (a) three books at least, being portions of Greek and Latin authors of the best age, one of such books at least being some portion of an historical and philosophical work; (b) either Logic or the Elements of Geometry and Algebra. Candidates for honors in Greek and Latin Literature shall be examined in Latin and Greek authors, especially poets and orators, and in one or more of the following subjects: (a) The History of Greek and Latin Literature, or of some periods thereof, with such portions of ancient writers on the Arts of Poetry and Style as shall be specified by the Board of the Faculty; (b) the

Elements of Deductive Logic, together with some portion of an ancient writer on Logic, or on Language, or some other department of Logic. Such portion of an ancient writer on Logic, or on Language, and such other department of Logic as shall be specified by the Board of the Faculty; (c) the Elements of Comparative Philology as illustrating the Greek and Latin Languages.

The *Second Public Examination* consists of an examination for candidates who do not seek honors; of preliminary examinations, and of a final examination in Seven Honor Schools, of which the subjects shall be :

1. Literae humaniores.
2. Mathematics.
3. Natural Science.
4. Jurisprudence.
5. Modern History.
6. Theology.
7. Oriental Studies.

No one shall be admitted as a candidate in any Final Honor School until he shall have entered upon the eleventh term from his matriculation.*

There are two degrees in medicine at Oxford,† B. M. and D. M., and two degrees in surgery, B. Ch. and M. Ch. The B. M. and B. Ch. degrees are granted to those members of the University who have passed the second examination. Graduates in Arts (B. A. or M. A.) are alone eligible for these two degrees. In order to obtain the degrees of B. M. and B. Ch. the following examinations must be passed:

*For further details of requirements see "The Examination Statutes" (Statt. Univ. Oxon., Tit. VI), together with the Regulations of the Boards of Studies and Boards of Faculties, for the year 1890-91. Oxford, 1890.

† The Lancet, Sept. 3, 1892, p. 530.

1. Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology, and Botany. 2. Professional. (a) First examination: Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy, and Materia Medica with Pharmacy. (b) Second examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene. The degree of D. M. is granted to Bachelors of Medicine of the University—(1) who took the degree of B. M. previously to the end of Trinity Term, 1886, provided they have spent three years in the practice of medicine after taking that degree, and have composed a dissertation on some medical subject approved by the Regius Professor of Medicine, before whom it must be read in public; (2) who took the degree of B. M. subsequently to the end of Trinity Term, 1886, provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B. M. whose subject is dealt with.*

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the colleges, or as a non-collegiate student, and keep nine terms by residence in the University. He must pass the previous examination in Classics and Mathematics, or obtain exemption through the

* Generally after finishing the regular courses the graduates spend three or four years in the London hospitals, especially St. Bartholomews.

Oxford and Cambridge Schools Examination Board. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, etc.

For the degree of Bachelor of Medicine* (M. B.) five years of medical study are required. There are three examinations for M. B.

1st. Chemistry and other branches of Physics, and Elementary Biology.

2d. Human Anatomy and Physiology and Pharmaceutical Chemistry.

3d. *a.* Principles and Practice of Surgery (with operative and clinical surgery) and Midwifery and Diseases of Women.

b. Pathology, Principles and Practice of Medicine, Elements of Hygiene and Medical Jurisprudence.

The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories.

As Operative and Clinical Surgery now form parts of the third M. B. examination, candidates who have passed both parts of that examination are admitted to the degree of Bachelor of Surgery (B. C.) without separate examination or without keeping an act.

The degree of Doctor in Medicine may be taken three years after that of M. B., or four years after that of M. A. An act has to be kept, consisting of an original Thesis, sustained in the Public Schools with viva-voce examination, and an extempore essay has to be written on some subject relating to Physiology, Pathology, or the Practice of Medicine, or State Medicine.

* The Lancet, London, Sept. 3, 1892, p. 530.

For the degree of Master in Surgery (M. C.) the candidate must have passed all the examinations for B. C. He is required to pass an examination in Surgical Anatomy and Surgical Operations, Pathology and the Principles and Practice of Surgery, and to write an extempore essay on a Surgical subject. Before he can be admitted to this examination, two years at least must have elapsed from the time when he completed all required for the degree of B. C.

UNIVERSITY OF LONDON.

Bachelor of Medicine.—Every candidate for the degree of Bachelor of Medicine will be required—1. To have passed the Matriculation Examination in this University. 2. To have passed the Preliminary Scientific Examination. 3. To have been engaged in his professional studies during four years subsequently to passing the Preliminary Scientific Examination at one or more of the medical institutions or schools recognized by this University, one year at least of the four to have been spent in one or more of the recognized institutions or schools in the United Kingdom. 4. To pass two examinations in Medicine.

Intermediate Examination.—The Intermediate Examination in Medicine takes place twice a year. * * No candidate shall be admitted unless he have passed the Preliminary Scientific Examination at least two years previously and have produced certificates to the following effect: 1. Of having completed his nineteenth year. 2. Of having subsequently to having passed the Matriculation examination been a student during two years at one or more of the medical institutions or schools recognized by this University, and of having attended



a course of lectures on each of three of the subjects in the following list : Descriptive and Surgical Anatomy, Histology and Physiology, Pathological Anatomy, Materia Medica and Pharmacy, General Pathology, General Therapeutics, Forensic Medicine, Hygiene, Obstetric Medicine and Diseases peculiar to Women and Infants, Surgery, Medicine. 3. Of having subsequently to having passed the Preliminary Scientific Examination, dissected during two sessions. 4. Of having subsequently to having passed the Preliminary Scientific Examination, attended a course of Practical Chemistry, comprehending practical exercises in conducting the more important processes of general and pharmaceutical chemistry, in applying tests for discovering the adulteration of articles of Materia Medica, and the presence and nature of poisons and in the examination of mineral waters, animal secretions, urinary deposits, calculi, etc. 5. Of having attended to Practical Pharmacy and of having acquired a practical knowledge of the preparation of medicines.

For the M. B. Examination, Degree of "Bachelor of Surgery," "Master in Surgery" and Doctor of Medicine, see the *Lancet*, London, Sept. 3, 1892, pp. 531, 532.

UNIVERSITY OF EDINBURGH.

The applicant must bring a certificate of "Preliminary Examination," or must be a Bachelor of Arts (B. A.) of a University. Certain schools and corporations are authorized to give these certificates of "Preliminary Examination." This examination comprises : English, Latin, Arithmetic, Elements of Mathematics and Mechanics. Besides this the candidate must have certificates for any two of the following branches, which he may choose : Greek, French, German,

Higher Mathematics, Natural Philosophy, Logic, Moral Philosophy. If the candidate desires to become a Doctor of Medicine (M. D.) he must further have certificates as to "Greek" and "Logic or Moral Philosophy," and also one of the following, according to his choice: French, German, Higher Mathematics, Natural Philosophy.

Three medical degrees* are conferred by this University, namely Bachelor of Medicine (M. B.), Master in Surgery (C. M.), and Doctor of Medicine (M. D.) Only Bachelors of Medicine can receive the degree of Master in Surgery. No one is admitted to the degrees of Bachelor of Medicine and Master in Surgery who has not been engaged in medical and surgical study for four years. The candidate for the degrees of M. B. and C. M. must give evidences by certificates:

a. That he has studied each of the following departments of medical science, viz. Anatomy, Chemistry, Materia Medica, Institutes of Medicine or Physiology, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Children, and General Pathology, each during courses including not less than one hundred lectures; Practical Anatomy, a course of the same duration as those of not less than one hundred lectures: Practical Chemistry, three months; Practical Midwifery (that he has attended at least twelve cases of labor under the superintendence of a registered medical practitioner, or that he has attended six such cases, and also has attended, for at least three months, the practice of a midwifery hospital in which practical instruction is regularly given); Clinical Medicine and Clinical Surgery; courses of the same duration as those of not less than one hundred lectures, being given at least twice a week; Medical Jurisprudence, Botany

* The Lancet, London, 1892, Sept. 3, p. 533.

and Natural History (including Zoology) during courses including not less than fifty lectures.

b. That he has attended for at least two years the medical and surgical practice of a general hospital which accommodates not fewer than eighty patients and possesses a distinct staff of Physicians and Surgeons.

c. That he has attended during a course of not less than fifty hours instruction, the class of Practical Materia Medica and Pharmacy in the University of Edinburgh, or a similar class conducted in a University or recognized School of Medicine, or a similar class conducted at the laboratory of a hospital or dispensary, or elsewhere, by a teacher recognized by the University Court; or that he has been engaged by apprenticeship for not less than two years with a registered medical practitioner or a member of the Pharmaceutical Society of Great Britain, or a member of the Pharmaceutical Society of Ireland, or a pharmaceutical chemist, or chemist and druggist registered under the provisions of the Act for Regulating the Qualifications of Pharmaceutical Chemists, 1852, the Pharmacy Act, 1868, or the Pharmacy Act (Ireland) 1875, in the *bona fide* compounding and dispensing of drugs, and the preparation of their official and other preparations under his superintendence.

d. That he has attended for at least six months, by apprenticeship or otherwise, the out-door practice of a hospital or the practice of dispensary physician, a surgeon or a member of the London or Dublin Society of Apothecaries.

e. That he has attended during courses of not less than fifty hours instruction, classes of Practical Physiology and Practical Pathology in the University of Edinburgh, or in a recognized University or School of Medicine, or upon classes thereof conducted by a teacher recognized by the University Court.

Examinations are had both in writing and orally on Chemistry, Botany and Natural History (Physics is now required by the regulation of the General Medical Council), on Anatomy, Institutes of Medicine, Materia Medica (including Practical Pharmacy and Prescribing) and Pathology; on Surgery, Practice of Medicine, Midwifery and Medical Jurisprudence; clinically on Medicine and on Surgery in a hospital. The examinations on Anatomy, Chemistry, Institutes of Medicine, Botany, Natural History, Materia Medica and Pathology, are conducted as far as possible by demonstrations of objects placed before the candidates.

The degree of Doctor of Medicine may be conferred on any candidate who has obtained the M. B. and C. M. of the University, and who is of the age of twenty-four years, and produces a certificate of having been engaged subsequently to his having received the degrees of M. B. and C. M. for at least two years in attendance on a hospital, or in a military or naval medical service, or in a medical or surgical practice.

On the whole the requirements of the Edinburgh Medical College as well as that of Oxford are the same as those obtained in German Gymnasias in preparation for the University; with this exception, that studies left to the choice of the English student are made compulsory in the German Gymnasias.

GERMANY.

In Germany the applicant for admission to the Medical Faculty of a University must have a certificate that he has successfully passed the "Abiturienten" examination, that is, the final examination of the Gymnasial course. This exam-

ination is considered as more formidable than the professional examinations which follow. The course extends over a period of nine years, although in exceptional cases the students are permitted, on account of special ability and application, to finish in seven years. The studies required are Latin, which is taken throughout the course, and of which a high standard is required, as the student must on his examination be able to defend a thesis in this language; the authors read are generally : Caesar, Ovid, Sallust, Cicero, Livy and Horace; Greek during six years, and the authors : Xenophon, Homer's Iliad and Odyssey, Anacreon, Sophocles and Aeschylus. The French language, the German language, Mathematics, including Arithmetic, Geometry, Algebra, Conic Sections. Trigonometry and Logarithms. The field of study in History is exceptionally large, including modern and ancient, from the Egyptians to the present day, with the Geography relating thereto; Anatomy, Botany, Zoology, Elementary Mechanics, Drawing, Astronomy, Chemistry, Logic, and religious instruction according to creed.

This examination may be best compared to that for the higher certificates conducted by the Oxford and Cambridge Schools Examination Board. A student of moderately good ability, who has gone through the Gymnasial course, will rarely pass the "Abiturienten" examination until he is eighteen or nineteen years of age.

The medical student at the University must devote eight semesters to medical study. The first four semesters are devoted exclusively to Physics, Chemistry, Zoology, Botany, Mineralogy, Anatomy and Physiology. At the end of these four semesters the student may pass the first examination, the *tentamen physicum*. With the fifth semester begin the purely medical studies, which must be continued without interruption for two years, and then the student may pass the

State examination. The University examination can be passed either after or before the State examination.

The State examination can be passed either before the chief examining committee in Berlin, or before special examining committees which are annually appointed for the different universities.

The application for permission to pass the State examination is to be accompanied by certificates that the applicant has completed a full course of study in the Gymnasium and in a University, that he has successfully passed the *tentamen physicum*, and that he has acted as practican during the last two semesters, both in a medical and in a surgical clinic, and that he has attended at least four cases of midwifery in the obstetrical clinic. The examination extends over many days and is divided into five parts :

1. Anatomy, physiology and pathological anatomy.
2. Surgery and ophthalmology.
3. Medical.
4. Obstetrical and gynecological.
5. Final examination.

The examination in anatomy is divided into two parts. At the first the candidate draws by lot a question in osteology and another about the viscera, and he must immediately demonstrate the corresponding preparation which is handed to him. He is then given some nervous preparation which he must take away and dissect and demonstrate before the examiners at their second meeting.

In the physiological examination the candidate must draw by lot two questions, one on histology, the other on physiology, and immediately discuss them (orally). He must prepare and demonstrate the histological specimen in the presence of the examiners so as to show his acquaintance with the microscope.

In the pathological examination the candidate must make an autopsy of the whole or at least a part of the body and dictate the results. He must also demonstrate a pathological specimen.

In the surgical examination each candidate must take charge of two patients for a week. In the presence of the examiner he must examine the patient and discuss the etiology, diagnosis, prognosis, and treatment. He must write out a history of the case and keep a record of it each day. The candidate must also attend the regular morning visits at least three times during this week and have questions about other cases put to him. At another time he is given a question about some operation and must give an account of the operation and instruments employed, and then perform the operation upon the cadaver. He must answer in the same way another question on luxations.

In the ophthalmic examination he must examine a patient with disease of the eye as above described in surgery.

The medical examination is conducted in exactly the same way as was described in the surgical examination. In addition, special attention is paid to the doses of medicine and to the writing of prescriptions.

In the obstetrical examination he is shown a woman in labor and must make the diagnosis of the period of labor, the position of the child, and the prognosis, and must conduct the labor. He must then write out a history of the birth. In addition, during seven days he must examine a number of obstetrical and gynecological cases and discuss them. He must also perform operations on the phantom.

Finally he is subjected to a final oral examination to test his general medical knowledge. The cost of the examination is \$51. The time between the different examinations should not exceed eight days.

In order to pass the University examination it is not necessary to have passed the *tentamen physicum*. The application for permission to pass the University must be made to the dean of the medical faculty, and must be accompanied by certificates that the candidate has studied at least six, in some Universities eight semesters, a certificate of good character from the police, and a thesis on some medical subject, and \$106. In some Universities the dean gives the candidate a preliminary examination to see if he is sufficiently well prepared, but in most Universities this is not the custom. If the thesis be satisfactory to the professors, then the candidate is allowed to come up for examination. The examination is an oral one, and is held in anatomy, physiology, general pathology and pathological anatomy, special pathology and therapeutics, surgery, midwifery and gynecology. After the examination the candidate hands in his dissertation. The examination is held before six regular professors, and each examiner examines for about a quarter of an hour. The dissertation is sometimes discussed in public, but more frequently not.

There are two medical diplomas given in Germany, one by the State and the other by the University, and each has its separate examinations and requirements: the former being the more difficult of the two. The State recognizes only those doctors who have passed its examination. They alone have a license to practice and they alone can receive appointments to any medical office. Those doctors who have only passed the University examination can hold no appointment, and cannot insist on the payment of their fees from their patients. Any person who chooses, with or without a degree, can practice medicine in Germany, but he does so at his peril, and if he makes any mistakes, he is punished both by fine and imprisonment.

FRANCE.

THE FRENCH LYCÉE AND THE FRENCH
MEDICAL FACULTIES.

The courses and studies prescribed by the government* for the Lycée in 1892 were as follows :

A. Division Élémentaire.

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| 1. Classe préparatoire, | { French, modern languages (English or German), history, geography, sciences, drawing. |
| 2. " huitième, | |
| 3. " septième, | |

B. Division de Grammaire.

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|-------------------------|--|
| 4. Classe de sixième, | { French and Latin, modern languages, zoology, arithmetic, ancient and oriental history, geography, drawing. |
| 5. Classe de cinquième, | |
| 6. Classe de quatrième, | { French, Latin, Greek, modern languages, geology (1st semester), botany (2d semester), arithmetic, Greek history, geography of France, drawing. |
| | { French, Latin, Greek, modern languages, geometry, Roman history, general geography and geography of America, drawing. |

C. Division supérieure.

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|-------------------------|--|
| 7. Classe de troisième, | { French, Latin, Greek, modern languages, mathematics, history of the Middle Ages, geography of Africa, Asia and Australia. |
| 8. Classe de seconde, | |
| | { French, Latin, Greek, modern languages, mathematics, history of Middle and Modern Ages, geography of Europe, drawing (optional). |

*A detailed statement giving further particulars, such as number of hours devoted to each study, authors read, etc., will be found in "Plan d'Études et Programmes de l'Enseignement Secondaire classique," Paris, 1892.

9. Classe de Rhétorique, { French, Latin, Greek, modern languages, mathematics, modern history, geography(France), drawing (optional).
10. Classe de Philosophie, { Instruction in philosophy, physics and chemistry, elements of natural history, contemporaneous history, drawing (optional).

In this schedule the "modern languages" referred to mean English or German. In mathematics the requirements appear to be less than in the English and German Universities, being confined to arithmetic, algebra and geometry.

There are two classes of medical men in France, the "*Docteur en Médecine*" and the "*Officier de Santé*." The applicant for the former must complete his studies at one of the six faculties of France, viz. Paris, Montpellier, Nancy, Lille, Lyons, and Bordeaux. To be admitted to one of these he must have the "*Diplôme de Bachelier ès lettres*" and the "*Diplôme de Bachelier ès sciences restreint*." The examinations for the Bachelier ès lettres comprise the subjects taught in the three highest classes of Lycées, corresponding to the fourth, fifth and sixth, or perhaps more nearly to the lower and upper fifth and the sixth forms of an English school. A piece of Latin prose and an essay in German or English are required. Candidates are examined also in a number of authors,—Greek, Latin, or either English or German, History, Geography and French Literature; also Arithmetic, Algebra, Geometry, Elementary Logic and Mental and Moral Philosophy, and Elementary Chemistry, Physics and Natural History. These examinations are considered about equivalent to the intermediate B. A. of the University of London, or to the pass B. A. at Oxford or Cambridge. The degree of "*Bachelier ès sciences restreint*" in addition demands considerable knowledge of Chemistry, Astronomy, Zoology, Botany and Geology.

The academical course is four years, and the studies are generally divided as follows :

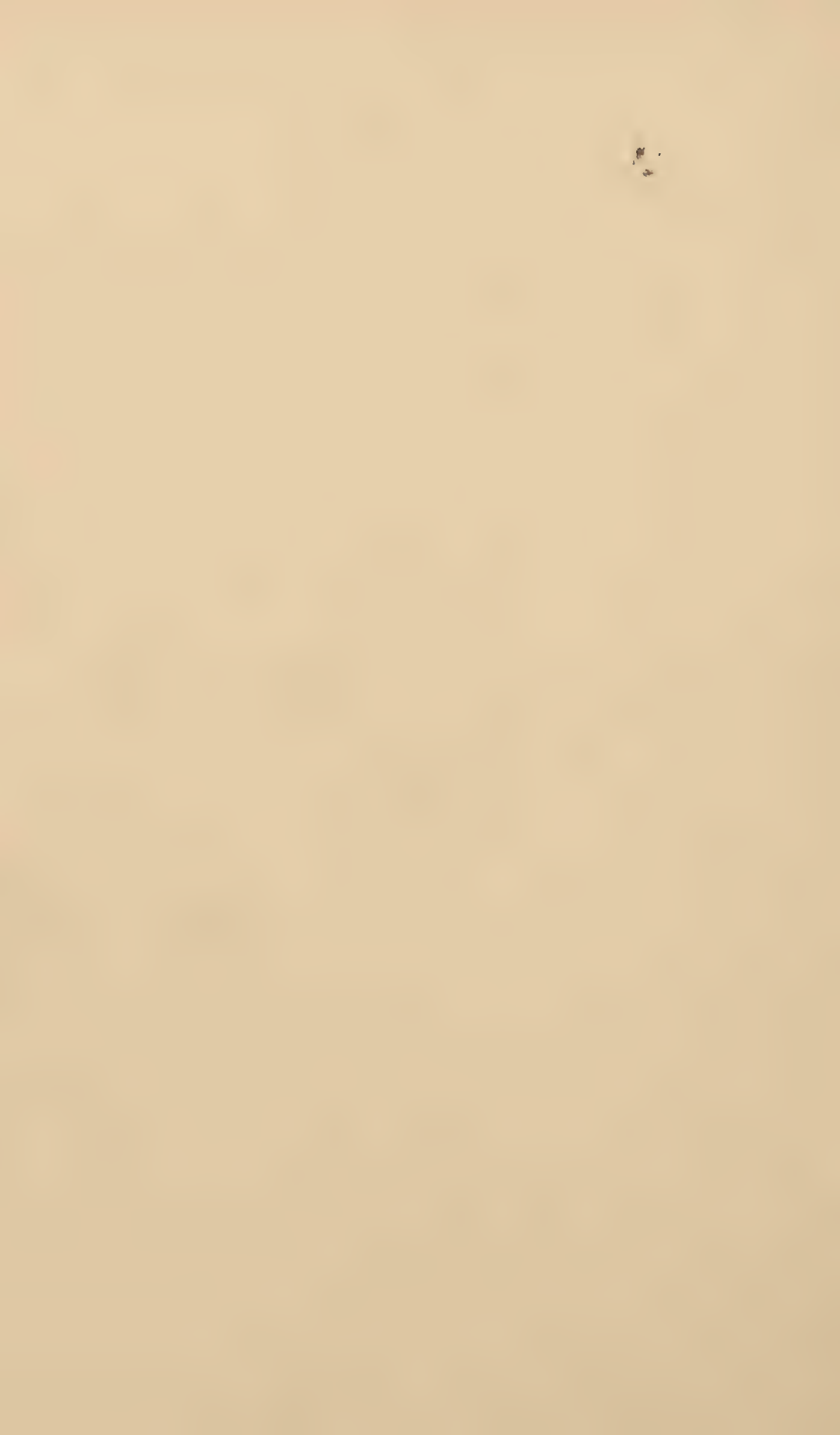
1st year—Physics, Chemistry, Anatomy and Dissection, Natural History, Physiology and Histology.

2d year—Anatomy and Dissection, Histology, General Pathology, Surgical Pathology and Clinic, Physiology, Medical Pathology.

3d year—Dissection, Surgical Pathology and Clinic, Medical Pathology and Clinic, Operations and Apparatus, Gynecology.

4th year—Dissection, Surgical Pathology and Surgery, Medical Jurisprudence, Pathological Anatomy, *Materia Medica* and Therapeutics, Hygiene and Gynecology.

The "*Officiers de Santé*."—(This grade has either very lately been abolished or is about to be abolished.) These correspond to the "quondam" Wundärzte of the first class of Prussia, or the "magistri chirurgiæ" of Austria. They are educated in the "*Écoles préparatoires*," of which there are twenty-one in France. The requirements for admission to these schools are very little; as educational proof they require "un certificat de grammaire, ou un certificat délivré par un proviseur de Lycée, attestant qu'ils ont fait leur quatrième." They must be seventeen years of age before they can be admitted. At these *Écoles préparatoires* the following studies are required: Chemistry, Natural History, Anatomy, Physiology, Medical and Surgical Pathology, and Clinic, Operative Surgery, Gynecology and Pharmacology, and a three years course is prescribed. After graduation they are assigned to certain departments in France to which their practice is limited. They can practice everything, but cannot perform the major operations without the supervision of a *Docteur en Médecine*. Several of the twenty-one *Écoles*



préparatoires are annexes to the three Medical Faculties of France, and, on certain conditions, the student may be admitted from them to the Medical Faculty ; but, as a rule, the "Officiers de Santé" complete their education at the Écoles préparatoires.

SWEDEN.

The applicant for admission to the Medical Faculty of a University (Upsala or Lund, or the Medical Academy at Stockholm) must have the "Maturitäts" certificate from a Gymnasium.

As a rule the time spent as a student at the Medical Faculty is ten years. After two and a half or three years he goes through the "examen medico-philosophicum." Three years later he passes the examination as candidate of medicine, which includes : Anatomy, physiology, physiological chemistry, general pathology and pathological anatomy, pharmacology. Four years later the "Examen pro licentia practicandi" : practical medicine, practical surgery, ophthalmology, obstetrics, forensic medicine. The studies are free, and no time for studies are prescribed, but a certificate is required that the applicant has attended clinic for six months in Lund or Upsala. All students must go to Stockholm, where they must acquire certificates of having attended : eight months the medical and surgical clinic ; four months obstetrical clinic, and two months psychiatric clinic. Only the Professors at Lund, Upsala or Stockholm can be examiners. A "tentamen" precedes each public examination, and only those students who have proved themselves capable in the "tentamen" are admitted to the final public examinations, which are therefore passed by all that are admitted to this.

The standing of the medical profession in Sweden is very high. Owing to the length of the studies, the severe examinations, and the close relations between professor and student, the poorer material is well weeded out before the final examinations are attempted.*

ITALY.

The applicant desiring to commence the study of medicine at any of the twenty-one Universities of Italy must show that he has passed through an eight years course of study at school,—that is to say, five years in a “Ginnasio” and three years in a “Liceo.” Both Greek and Latin must be studied, but in the final examination for the “Licenza liceale,” which corresponds somewhat to the French “Bachelier ès lettres,” Greek is not compulsory. French is taught in the Ginnasio but not in the Liceo, and so does not enter into the final examination. A good knowledge of Latin is required, including several authors and both prose and verse composition. A considerable amount of history, geography and Italian literature is required. In mathematics, algebra is required to logarithms and quadratic equations, Euclid to the sixth book (including the fifth), plane trigonometry and conic sections; also mechanics. In science, elementary physics, chemistry and natural history are necessary.

At the medical faculty of the University the course is six years; but there are no rules as to length or sequence of studies. The sole control are the many public examinations. For each examination there is a Commission consisting of

* *Billroth* (Th.). Ueber das Lehren und Lernen der Medicinischen Wissenschaften, etc. Wien, 1876.

the Professor of the special board in which the candidate is to be examined and two co-examiners appointed by the faculty. After each examination the candidate receives a certificate. There is no rule as regards the serial order of the subjects for examinations, although "usage" has made the following rule generally accepted :

1st year—Zoology, Botany, Inorganic Chemistry.

2d year—Physics, Organic Chemistry, Comparative Anatomy.

3d year—Anatomy, Physiology.

4th year—General Pathology and Pathological Anatomy.

5th year—Special Pathology and Surgery and Clinic; Topographical Anatomy, Operative Surgery.

6th year—Medical and Surgical Clinic, Hygiene and Medical Jurisprudence, Ophthalmology, Obstetrics.

After all examinations have been successfully passed the candidate receives the "Venia practicandi," or the right to practice. Should he aspire to the "Diploma Laurea di Dottore in medicina e chirurgia," he has to pass a special examination before seven professors, and write a Thesis on a subject drawn by lottery.*

* *Billroth* (Th.). Ueber das Lehren und Lernen der Medicinischen Wissenschaften, etc. Wien, 1876.

